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ABSTRACT

This paper analyzes the population change and urbanization process in post-war Japan. We trace the process of population concentration into urban areas parallel with economic development after the war. The concentration of population into urban areas can be characterized by that into the three major metropolitan regions, Tokyo, Keihanshin (Kyoto-Osaka-Kobe) and Nagoya Regions. We also reveal that the urbanization process of Japan in the periods from 1965 to 1985 can be characterized by two spatial phenomena; firstly, the suburbanization of the existing metropolitan areas, and secondly, the spatial dispersal of urbanized areas.

The Trends of the Population and Urbanization in Post-war Japan

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1. Trends of the Total Population

After the Second World War, the population of Japan rose from 72 millions in 1945 to 123 millions in 1990, that is, it increased 1.7 times for 45 years, as shown in Table 1. From 1945 to 1950, since many Japanese people returned from abroad and the baby boom followed, the population grew so rapidly that the growth rate recorded 15.3 per cent in that period, equivalent to 2.9 per cent growth per annum.

Since then, though the speed of the growth fell considerably, the average annual rate still remained almost over 1 per cent until 1975 except the period from 1955 to 1960. The total population

Table 1 Total Population of Post-war Japan

	Population	(thousands,%)	
		Five-year Growth Rate	Average Annual Growth Rate
1945	72,147		
1950	84,115	15.3	2.9
1955	90,077	7.1	1.4
1960	94,302	4.7	0.9
1965	99,209	5.2	1.0
1970	104,665	5.5	1.1
1975	111,940	7.0	1.4
1980	117,060	4.6	0.9
1985	121,049	3.4	0.7
1990	123,611	2.1	0.4

Note) The population of Okinawa is not included in 1945.

The growth rate from 1945 to 1950 is calculated
by excluding Okinawa.

Source) Population Census of Japan

Reference) Statistics Bureau, Management and
Coordination Agency (1992b)

exceeded 100 millions in 1970, and reached 112 millions in 1975. After 1975, however, the population growth of Japan slowed down further, and the average annual growth rate decreased under 1 per cent. It finally declined to 0.4 per cent in the late 1980s.

The population change of post-war Japan is exclusively caused by the change in natural increase. Then, let us see the trends of fertility and mortality. Figure 1 shows the trends of live birth and death rates, respectively, while Figure 2 shows the total fertility rate.¹⁾ The birth rate per 1,000 population was over 30 in the late 1940s, when the baby boom occurred. In that period, the total fertility rate was over 4. Since 1950, however, the birth rate decreased drastically and to 17 in 1961. The total fertility rate also decreased to less than 2 in 1961. Such significant fertility decline caused the slowing down of the population growth.

From the early 1960s to the early 1970s, the trend of the birth rate showed relatively slight increase. In the early 1970s, it reached 19 because of the second baby boom. The total fertility rate remained almost 2 in that period.

Figure 1 Live Birth and Death Rates (per 1,000 population)

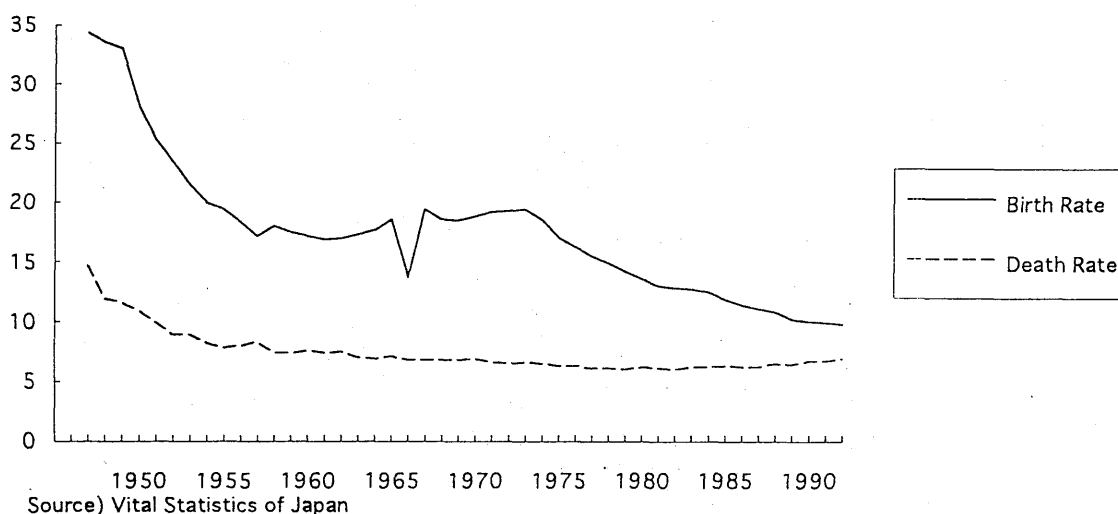
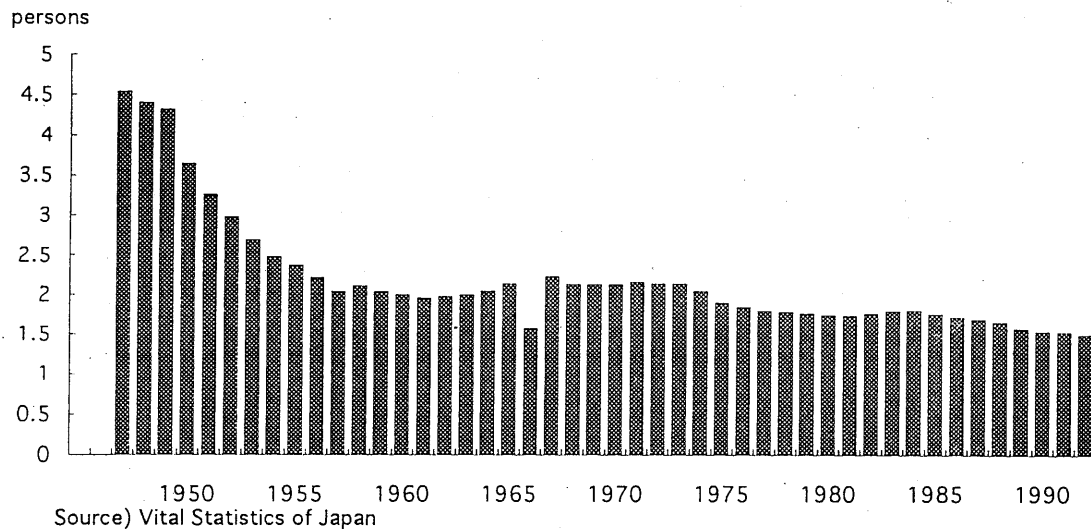


Figure 2 Changes in Total Fertility Rate



The fertility decline, however, restarted in the late 1970s. The birth rate has been decreasing continuously after 1974. It fell to 15 in 1978, and finally, to less than 10 in 1992. The total fertility rate declined under 2 in 1975 and to 1.5 in 1992. The decrease in the number of live births contributes to the recent stagnation of population growth.

The death rate, on the other hand, also declined rapidly. It decreased less than 8 in 1955, though it was over 34 in 1947. Since 1955, it continued to decrease slowly, and reached 6.2 in 1987. It, however, started to increase slightly again in 1988, and rose to about 7 in 1992.

As known from the above, the changes in the total population of Japan from the 1970s are mostly affected by the continuous fertility decline. Such tendency is expected to continue in the future. It would not take much time for Japan to reduce its population growth to the same level as some European countries now experience.

2. Urban Population Change

2.1 Changes in Urban Population

The population growth of Japan after the War was followed by the progress of urbanization and the consequent increase in urban population. The urbanization in Japan proceeded so fast that it took only about 40 years to reach the same level of urbanization as the most highly urbanized OECD countries did.²⁾

Table 2 shows the percentages of the population living in urban areas in Japan. In that table we adopt three different definitions of urban areas. The first definition is based on municipal jurisdiction. Urban areas are defined as the areas of city municipalities (shi)³⁾, and then, non-urban areas as those of the other municipalities (machi and mura).

Table 2 Changes in Urban Population

	(thousands, %)							
	1955	1960	1965	1970	1975	1980	1985	1990
Population								
Nation Total	89,276	93,418	98,275	104,665	111,940	117,060	121,049	123,611
City Areas	50,288	59,333	66,919	75,429	84,967	89,187	92,889	95,644
DIDs		40,830	47,261	55,997	63,823	69,935	73,344	78,152
SMEAs			52,097		73,925		88,240	90,958
Percentage								
Nation Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
City Areas	56.3	63.5	68.1	72.1	75.9	76.2	76.7	77.4
DIDs		43.7	48.1	53.5	57.0	59.7	60.6	63.2
SMEAs			53.0		66.0		72.9	73.6

Note) Okinawa is not included in the DIDs' populations in 1960 and 1965, and SMEAs' populations in 1965 and 1975.

The SMEAs' population in 1990 is based on those areas defined in 1985.

Source) Population Census of Japan

In Japan, cities are usually employed for statistics of urban areas. After the Town and Village Merger Acceleration Law was established in 1953, however, there was considerable enlargement of city areas through annexation of neighboring municipalities as well

as increase in the number of cities because of the new incorporation of towns or villages into cities.⁴⁾ As a consequence, many cities came to include sparsely inhabited rural areas in their jurisdiction. Such circumstances required other concepts to represent urban areas besides city areas.

The second definition is the Densely Inhabited Districts (DIDs), which was introduced to respond to the above requirement. Each district is defined as an area with a population density of over 4,000 inhabitants/km² and with over 5,000 population.⁵⁾ This concept was firstly applied in the 1960 Population Census.

In those definitions of urban areas, suburbanization is not adequately taken into consideration. The advance of suburbanization increases mutual daily flows across municipal boundaries, and socio-economically integrates a city and its surrounding areas into one area, that is, a metropolitan area. It is necessary to use the concept of a metropolitan area for the purpose of analysis.

We, therefore, defined the Standard Metropolitan Employment Areas (SMEAs) as metropolitan areas in Japan by referring to the definition of the Standard Metropolitan Statistical Areas (SMSAs) of the United States.⁶⁾ It is the third definition of urban areas. In this definition, therefore, urban areas are regarded as metropolitan areas.

The population of the all cities was about 50 millions in 1955, and its percentage of the national population was 56 per cent. They rose to 85 millions and 76 per cent in 1975, respectively. The city population kept increasing after 1975, and reached 96 millions in 1990, 77 per cent of the national population.

Japan experienced the large scale concentration of population into urban areas parallel with economic development after the war. Especially, the urban population of Japan grew faster than the other developed countries from the 1950s to the 1970s. Japan, then, became

one of the most urbanized countries in the world. Its growth, however, has slowed down after the late 1970s.

As we mentioned above, the growth of the city population was brought about not only by population growth in the existing cities, but also by increase in the number of cities and enlargement of city areas through annexation. It should be noted, however, that the latter phenomena contributed more to high growth of the city population in the earlier periods.

The changes in the population densities of urban areas are shown in Table 3. The density of city areas decreased until 1960, since city areas were expanded through annexation or amalgamation of less densely populated areas in the earlier periods. After then, it has continued to rise, owing to the population growth of the existing city areas.

The changes in the populations of the DIDs and SMEAs show the same tendency as that of the city population. They increased considerably in the same periods. These areas are defined judging from such indices of urbanization as population density or land use pattern. The increase in the population of those areas, therefore, means spatial dispersion of urban areas as well as concentration of population into urban areas. The population densities of DIDs and SMEAs has kept decreasing. Such reduction of the densities is a consequence of spatial expansion of urbanized areas.

Table 3 Changes in Population Density

	(persons per square kilometers)							
	1955	1960	1965	1970	1975	1980	1985	1990
Nation Total	242	253	267	281	300	314	325	332
City Areas	743	721	761	792	831	870	902	922
DIDs		10,563	10,263	8,690	7,712	6,983	6,938	6,661
SMEAs			1,560		1,284		1,110	1,144

Source) Population Census of Japan

2.2 Characteristics of Urban Population

Let us look at some characteristics of urban population compared with non-urban population. In this analysis, we use city population as urban population.

Table 4 shows the changes in the number of households. More households are located in urban areas than in non-urban areas, and its percentage of the total number of the nation reached 80 per cent in 1990, which is higher than that of the population. It means that the family size in urban areas is smaller than in non-urban areas. Actually, the average members per household in urban areas are fewer than in non-urban areas as the table shows. The average members, however, have been decreasing in urban areas and in non-urban areas as well. They are 2.9 persons in the former areas, and 3.5 in the latter areas in 1990, respectively.

Table 4 Changes in the Number of Households

	1955		1965		1975		1985		1990	
	Number of Households	Average Family Members	Number of Households	Average Family Members	Number of Households	Average Family Members	Number of Households	Average Family Members	Number of Households	Average Family Members
Nation Total	17,383	4.97	23,085	4.05	31,271	3.45	37,980	3.14	40,670	2.99
	100.0		100.0		100.0		100.0		100.0	
City Areas	10,631	4.73	16,276	3.86	24,494	3.33	30,265	3.03	32,683	2.88
	61.2		70.5		78.3		79.7		80.4	
Non-city Areas	7,329	5.32	6,810	4.49	6,776	3.90	7,715	3.60	7,988	3.45
	42.2		29.5		21.7		20.3		19.6	

Source) Population Census of Japan

As for the age structure of population, population aging has been accelerated in recent years. As shown in Table 5, the proportion under 15 years old continues to decrease, while the proportion aged 65 and over keeps increasing. The former fell from 33.4 per cent in 1955 to 18.2 per cent in 1990. The latter rose from 5.3 per cent in 1955 to 12 per cent in 1990.

If we compare the age distribution of population between urban and non-urban areas, we can know that the proportion of the working age group (population aged from 15 to 64) is higher in urban areas in all years. It implies that the concentration of working age population into urban areas is dominant.

Table 5 Changes in the Age Structure of Population

		(%)				
		1955	1965	1975	1985	1990
Nation Total	Under 15	33.4	25.6	24.3	21.5	18.2
	15~64	61.3	68.1	67.7	68.2	69.5
	65 or More	5.3	6.3	7.9	10.3	12.0
City Areas	Under 15	31.8	24.2	24.6	21.5	17.9
	15~64	63.6	70.3	68.4	69.1	70.7
	65 or More	4.6	5.5	7.0	9.4	11.0
Non-city Areas	Under 15	35.5	28.7	23.5	21.6	19.0
	15~64	58.3	63.3	65.7	65.0	65.2
	65 or More	6.2	8.0	10.7	13.4	15.7

Note) Okinawa is not included in 1955 and 1965.

Source) Population Census of Japan

The proportion under 15 in urban areas was lower than non-urban areas in 1955 and 1965. It, however, became higher in 1975, though it turned lower than in non-urban areas in 1980. The lower proportion of the child population in urban areas in the earlier periods is closely related to the fact that the proportion of the working age group was higher in urban areas. Many working age population, particularly young adults who had no child yet, migrated from non-urban areas to urban areas.

The young adults who concentrated into urban areas began to have their children in the 1970s. It made the proportion of the child population in urban areas over that in non-urban areas. The changes in the number of births in urban and non-urban areas are drawn on Figure 3. The number in urban areas kept increasing until 1970, and it recorded more than 1.9 millions in the 1970s. That in non-urban areas has continued to decrease, and remained under that in urban areas from 1960.

It should be noticed, however, that the number of births in urban areas also began to decrease considerably from 1980, accompanied with the reduction of the total fertility rate. Because of such rapid decrease in the number of births in urban areas in the 1980s, the proportion of the child population turned lower than in non-urban areas again.

Figure 3 Changes in the Number of Live Births

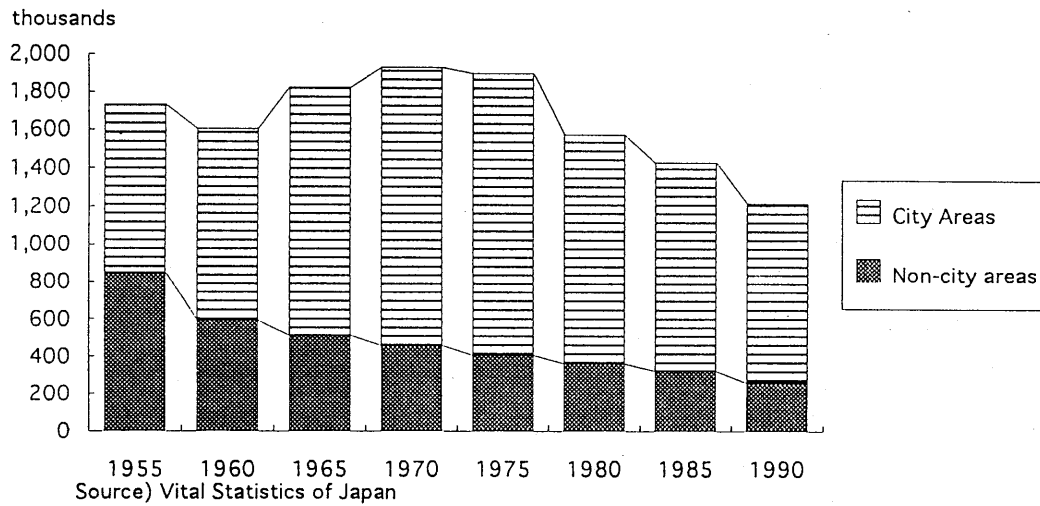
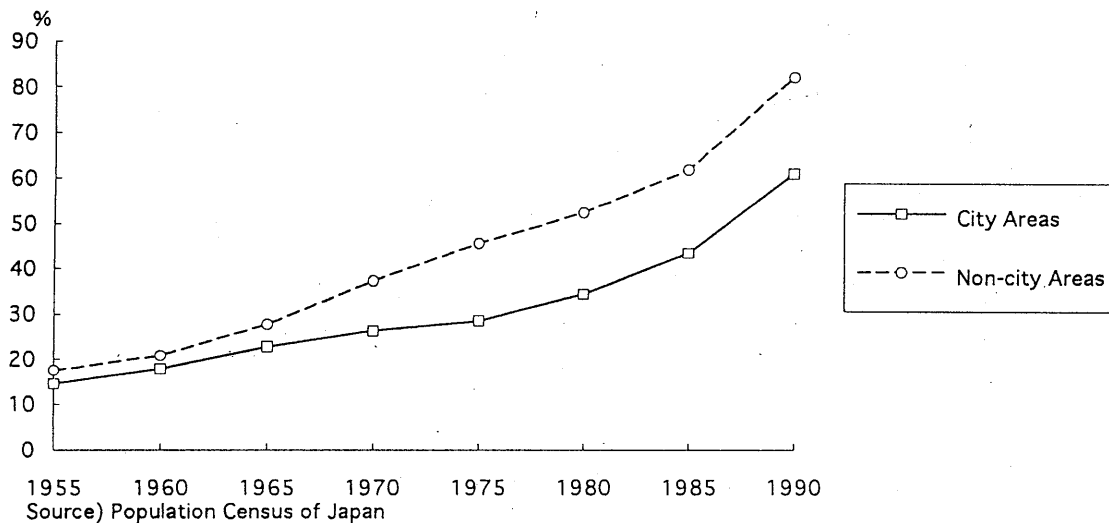


Figure 4 Changes in the Index of Population Aging



Reflecting the changes in the number of births, population aging advanced significantly in both of urban and non-urban areas. Figure 4 shows the trend of the aging by using the aging index which is calculated by dividing the number of population aged 65 and over by the number of population under 15. Population aging was accelerated earlier in non-urban areas than in urban areas. The aging in urban areas, however, proceeded in the 1980s. The proportion of the old population in urban areas, then, reached 11 per cent in 1990.

3. Regional Distribution of Population

First of all, the concentration of population into urban areas can be characterized by that into the three major metropolitan regions, Tokyo, Keihanshin (Kyoto-Osaka-Kobe) and Nagoya Regions. The trends of the populations of these regions are shown in Table 6. Figure 5 shows the changes in the regional shares of population.

In our analysis, Tokyo Region is composed of Saitama, Chiba, Tokyo and Kanagawa Prefectures. Keihanshin Region consists of Shiga, Kyoto, Osaka, Hyogo and Nara Prefectures, and Nagoya Region consists of Gifu, Aichi and Mie Prefectures, respectively. The other 35 prefectures are integrated into one regional group, which is called Other Regions.

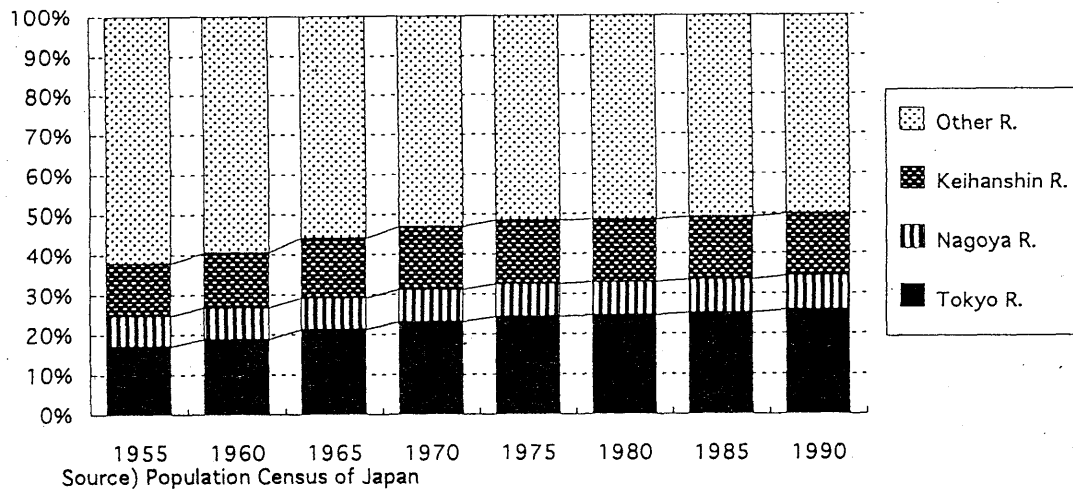
The population of the three major metropolitan regions was 34 millions, which was 37.8 per cent of the national population, in 1955. It increased to more than 61 millions, 49.9 per cent of the national population, in 1990. Tokyo Region, which can be regarded as the largest agglomeration in the world⁷⁾, had about 32 million in 1990, 25.7 per cent of the national population.

Table 6 Regional Distribution of Population

	(thousands, %)							
	1955	1960	1965	1970	1975	1980	1985	1990
Population								
3 Major Metro. Regions	34,068	38,222	43,780	49,160	54,218	57,002	59,498	61,686
Tokyo Region	15,424	17,864	21,017	24,113	27,042	28,699	30,273	31,797
Nagoya Region	6,838	7,330	8,013	8,688	9,418	9,869	10,231	10,550
Keihanshin Region	11,805	13,028	14,749	16,358	17,759	18,435	18,993	19,340
Other Regions	56,009	56,080	55,430	55,505	57,721	60,058	61,551	61,925
Nation Total	90,077	94,302	99,209	104,665	111,940	117,060	121,049	123,611
Rate of Population Growth								
3 Major Metro. Regions		12.2	14.5	12.3	10.3	5.1	4.4	3.7
Tokyo Region		15.8	17.6	14.7	12.1	6.1	5.5	5.0
Nagoya Region		7.2	9.3	8.4	8.4	4.8	3.7	3.1
Keihanshin Region		10.4	13.2	10.9	8.6	3.8	3.0	1.8
Other Regions		0.1	1.2	0.1	4.0	4.0	2.5	0.6
Nation Total		4.7	5.2	5.5	7.0	4.6	3.4	2.1

Source) Population Census of Japan

Figure 5 Changes in Regional Shares of Population



The five-year growth rate of the three major metropolitan regions remained over 10 per cent until 1975, while its peak appeared in 1965. On the other, the population of Other Regions was stagnant or decreased until 1970. In the 1970s, the growth rate of Other Regions rose to 4 per cent, while those of the major metropolitan regions dropped dramatically. In the 1980s, the growth rates of all regions kept decreasing. The decrease of Other Regions was faster than the major metropolitan regions.

The growth rate of the major metropolitan regions was higher than Other Regions in all periods, though they varied considerably as mentioned above. It means that population has been continuously concentrating into the major metropolitan regions after the war. The population share of these regions finally became almost 50 per cent in 1990 as shown in Figure 5.

It should be noticed, however, that the trends of population concentration are different among the three metropolitan regions. The growth rate of Tokyo Region was the highest among the three metropolitan regions in all periods. Though the growth rates fell drastically after 1975 in all metropolitan regions, its reduction was the slightest in Tokyo Region.

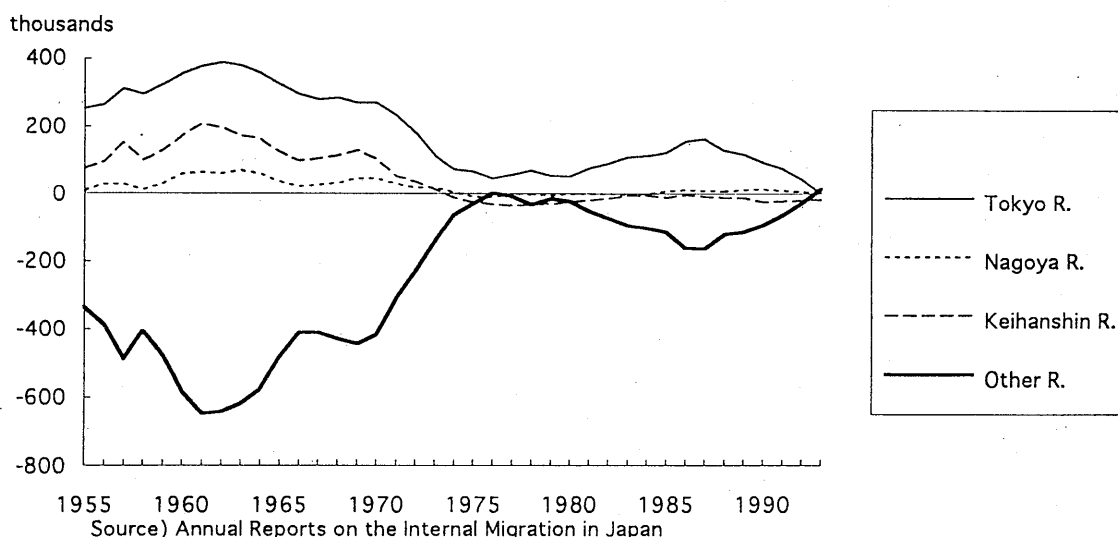
On the contrary, the growth rate of Keihanshin Region changed most remarkably. Although it remained over 10 per cent until 1970, it decreased lower than Other Regions in 1980. Its reduction in the 1980s was larger than that of Tokyo Region. Because of such difference of the growth rates, the population share of Keihanshin turned to decrease in 1980. The difference of the shares between Tokyo and Keihanshin Regions became wider. The share of Tokyo Region was 17.1 per cent in 1955, and it rose to 25.7 per cent in 1990, while that of Keihanshin Region was 13.1 per cent in 1955 and 15.6 per cent in 1990. The concentration into Tokyo Region continued to be predominant after the war until the early 1990s.⁸⁾

The extent of the concentration into the three major metropolitan regions varied among the periods. Population had concentrated into those regions most remarkably until the 1960s. In the 1970s, however, the concentration became stagnant, and then, Other Regions had higher population growth than in the previous periods. The concentration into the major metropolitan regions was strengthened again in the 1980s, though it was weaker than in the periods until the 1960s. The most distinctive feature of the 1980s is that population concentrated only into Tokyo Region. It is often called the uni-polar concentration into Tokyo.

Such changes in the concentration into the major metropolitan regions were mainly brought about by the changes in the interregional migration patterns. Using the data of inter-prefectural migration, the changes in the patterns of interregional migration can be drawn as Figure 6.⁹⁾ This figure shows the total volume of net-inmigration to each region from 1956 to 1993, which is calculated simply by summing the number of net-inmigrants to all the prefectures of each region.

The net-inmigration to the three major metropolitan regions reached its maximum in 1961, and reduced so quickly during the late 1960s and the early 1970s. The changing patterns of net-inmigration

Figure 6 Changes in the number of Net-inmigrants



to Other Regions formed the mirror image of those of the major metropolitan regions. And then, the numbers of net-inmigrants to each region converged to zero in 1976.¹⁰⁾ Ishikawa(1992) indicated two factors which caused the drastic change in the migration patterns. One is the reduction of the periphery-to-core migration of population aged from 15 to 24. The other is the increase in the core-to-periphery migration of population aged from 30 to 44.

After 1976, however, the trends of net-inmigration reversed. Tokyo Region started to recover net-inmigration. On the contrary, Other Regions turned to increase their net-outmigration again.

As the figure shows, the change in the net-inmigration pattern of Tokyo Region is quite different from the other major metropolitan regions. The net-inmigration to Tokyo Region never turned negative throughout the periods under study, and it began to rise again in the late 1970s, while those to Keihanshin and Nagoya Regions dropped below zero in the early 1970s. The net-inmigration to Nagoya Region began to increase in 1985 for the first time since 1975, though the net-inmigration to Keihanshin Region remained negative even in the 1980s. Such difference of the migration patterns shows that concentration of population was observed in all major metropolitan

regions before the early 1970s, but after the late 1970s it was seen only in Tokyo Region.

In short, the immigration to the three major metropolitan regions, especially to Tokyo Region from the other part of Japan had been remarkable until 1960s. But it fell considerably after the late 1960s, and then population concentration into the major metropolitan regions subsided. In the early period of 1970s, the interregional migration between the the metropolitan regions and the other regions went on balance, accompanied by the decrease in the number of migrants. Since the late 1970s, however, the immigration to Tokyo Region began to dominate over that to other regions again.¹¹⁾ In spite of such changes in the trends of interregional migration, the growth rate of Tokyo Region kept the highest during all periods under study. It should be noted, however, that the net-immigration to Tokyo Region started to decrease again from the late 1980s, and dropped to almost zero in 1993. It might be a sign that the concentration into Tokyo Region would seize up in the near future.

4. Change in Urbanization Process of Japan

In this section, the changes in the urbanization process of Japan is examined. The urbanization in Japan was accompanied by the population concentration into the major metropolitan regions. Table 7 shows the shares of urban populations in each region. It is evident that urbanization advanced to a quite high level in the major metropolitan regions. The proportion of city population to the regional population in those regions was already 74 per cent in 1955, and increased to 88 per cent in 1990. The proportion of SMEAs'

Table 7 The Shares of Urban Population by Region

		(%)							
		1955	1960	1965	1970	1975	1980	1985	1990
City Areas	3 Major Metro. Regions	74.0	79.7	82.3	85.3	88.1	88.0	88.1	88.2
	Other Regions	45.4	52.3	56.7	60.3	64.5	65.0	65.7	66.6
DIDs	3 Major Metro. Regions		63.8	67.0	71.8	75.2	77.5	78.0	80.2
	Other Regions		29.8	32.9	37.3	39.9	42.9	43.8	46.3
SMEAs	3 Major Metro. Regions			76.4		85.0		87.0	87.1
	Other Regions			34.2		48.3		59.2	60.2

Source) Population Census of Japan

population also increased from 76 per cent in 1965 to 87 per cent in 1990.

Urbanization progressed remarkably even in the other regions, though the level was still lower than the major metropolitan regions. The proportion of city population rose from 45 per cent in 1955 to 67 per cent in 1990. That of SMEAs' population also increased from 34 per cent in 1965 to 60 per cent in 1990. Urbanization advanced throughout the whole nation.

For the purpose of analysing urbanization process, the Standard Metropolitan Employment Areas (SMEAs) were defined as already explained. We applied the same criteria for the definition to the 1965, 1975 and 1985 Census data on the basis of floationg principle, and identified 87 SMEAs in 1965, 104 in 1975 and 118 in 1985. We can obtain a broad picture of the urbanization process during the two decades, 1965-75 and 1975-85, by comparing urban Japan in those years, using the population data of SMEAs.¹²⁾

Table 8 shows the number and the total populations of the metropolitan areas by size. The number of SMEAs with 1 million or more population increased from 6 in 1965 to 10 in 1985. Out of these SMEAs, the five largest SMEAs are located in the three major metropolitan regions as Table 9 shows. The population of Tokyo SMEA, which is the largest, was 27 millions in 1990.¹³⁾ Osaka SMEA is the

Table 8 The Population of SMEAs by Population Size

Size of SMEAs	1965				1975				1985			
	Number of SMEAs	Population of SMEAs (thousands, %)			Number of SMEAs	Population of SMEAs (thousands, %)			Number of SMEAs	Population of SMEAs (thousands, %)		
		SMEA Total	Central City	Suburb		SMEA Total	Central City	Suburb		SMEA Total	Central City	Suburb
1 Million or More	6	32,097	17,609	14,488	9	47,392	20,545	26,847	10	54,469	21,501	32,968
			54.9	45.1			43.4	56.6			39.5	60.5
500~1,000 thousands	4	3,203	2,761	442	12	7,305	5,369	1,936	21	13,428	8,724	4,704
			86.2	13.8			73.5	26.5			65.0	35.0
250~500 thousands	23	7,812	7,235	577	35	11,637	9,235	2,402	33	11,819	7,968	3,852
			92.6	7.4			79.4	20.6			67.4	32.6
100~250 thousands	54	8,985	8,470	515	48	7,591	6,357	1,235	54	8,523	6,200	2,323
			94.3	5.7			83.7	16.3			72.7	27.3
Total	87	52,097	36,075	16,022	104	73,925	41,506	32,419	118	88,240	44,394	43,846
			69.2	30.8			56.1	43.9			50.3	49.7

Note) Figures in the lower rows of Central City and Suburb are the percentages of SMEA total.
Source) Population Census of Japan

Table 9 The Population of the Five Largest SMEAs

(thousands,%)													
		1965			1975			1985			1990 in the Area Defined in 1985		
		Central City	Suburb	SMEA Total	Central City	Suburb	SMEA Total	Central City	Suburb	SMEA Total	Central City	Suburb	SMEA Total
Population													
	Tokyo SMEA	8,893	8,114	17,007	8,647	14,365	23,012	8,355	17,562	25,917	8,164	19,024	27,187
		52.3	47.7	100.0	37.6	62.4	100.0	32.2	67.8	100.0	30.0	70.0	100.0
	Nagoya SMEA	1,935	920	2,856	2,080	2,033	4,113	2,116	2,503	4,620	2,155	2,645	4,799
		67.8	32.2	100.0	50.6	49.4	100.0	45.8	54.2	100.0	44.9	55.1	100.0
	Kyoto SMEA	1,365	168	1,533	1,461	706	2,167	1,479	966	2,445	1,461	1,030	2,491
		89.0	11.0	100.0	67.4	32.6	100.0	60.5	39.5	100.0	58.6	41.4	100.0
	Osaka SMEA	3,156	4,886	8,043	2,779	7,906	10,685	2,636	8,871	11,507	2,624	9,076	11,700
		39.2	60.8	100.0	26.0	74.0	100.0	22.9	77.1	100.0	22.4	77.6	100.0
	Kobe SMEA	1,217	272	1,488	1,361	513	1,874	1,411	633	2,044	1,477	656	2,134
		81.7	18.3	100.0	72.6	27.4	100.0	69.0	31.0	100.0	69.2	30.8	100.0
	Keihanshin SMEAs	5,738	5,327	11,065	5,601	9,125	14,726	5,526	10,470	15,996	5,562	10,763	16,325
		51.9	48.1	100.0	38.0	62.0	100.0	34.5	65.5	100.0	34.1	65.9	100.0
	Sum of the Five SMEAs	16,566	14,361	30,927	16,327	25,523	41,850	15,997	30,536	46,533	15,881	32,431	48,312
		53.6	46.4	100.0	39.0	61.0	100.0	34.4	65.6	100.0	32.9	67.1	100.0
	Proportion of 5 SMEAs to National Population			31.2			37.4			38.4			39.1
Rate of Population Growth													
	Tokyo SMEA				-2.8	77.0	35.3	-3.4	22.3	12.6	-2.3	8.3	4.9
	Nagoya SMEA				7.5	120.9	44.0	1.8	23.1	12.3	1.8	5.6	3.9
	Kyoto SMEA				7.0	319.2	41.3	1.2	36.8	12.8	-1.2	6.6	1.9
	Osaka SMEA				-12.0	61.8	32.9	-5.1	12.2	7.7	-0.5	2.3	1.7
	Kobe SMEA				11.8	88.8	25.9	3.7	23.4	9.1	4.7	3.7	4.4
	Keihanshin SMEAs				-2.4	71.3	33.1	-1.3	14.7	8.6	0.7	2.8	2.1
	Sum of the Five SMEAs				-1.4	77.7	35.3	-2.0	19.6	11.2	-0.7	6.2	3.8

Note) Figures in the lower row of population are the percentages of SMEA total.

Source) Population Census of Japan

second largest, whose population was 12 millions in 1990, and Nagoya SMEA is the third, 4.8 millions. Osaka SMEA, and its adjacent Kyoto and Kobe SMEAs form the central area of Keihanshin Region. The total population of the three Keihanshin SMEAs was 16 millions in 1990. The population concentration into the three major metropolitan regions created those huge population agglomerations.

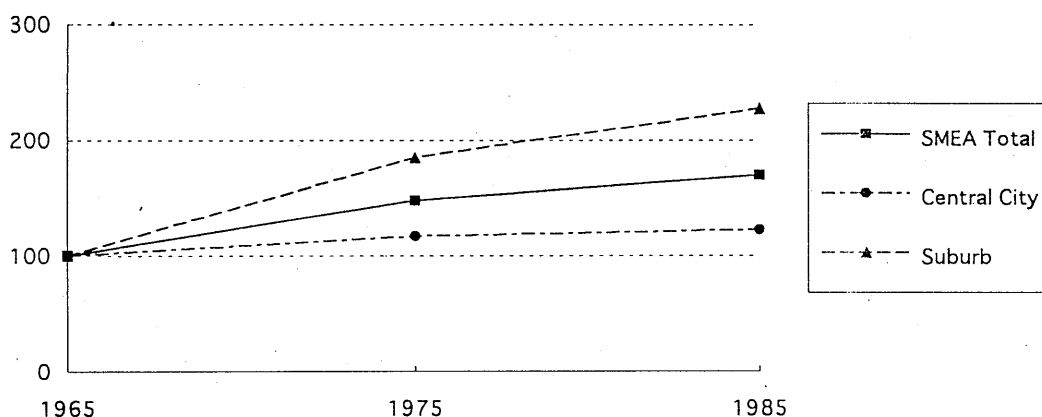
The increase in the number of SMEAs with population from 500 thousands to 1 million was most remarkable. It increased from 4 in 1965 to 21 in 1985. Out of those SMEAs, only three SMEAs are located in the three major metropolitan regions in 1985. The other SMEAs are located in Other Regions. SMEAs with population from 250 to 500 thousands also rose from 23 to 33 in the same period. Moreover, the total number of the SMEAs increased from 87 in 1965 to 118 in 1985. These facts implies that urbanization spatially dispersed, and it advanced around the previously non-metropolitan areas as well as

around large urbanized areas developed in the other regions than major metropolitan regions. It can be characterized as the decentralized urbanization out of the major metropolitan regions.

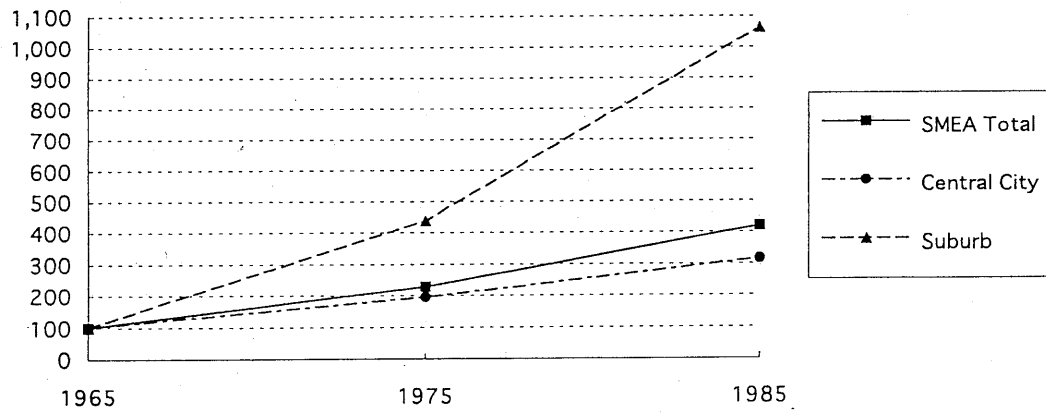
The decentralized urbanization progressed significantly even in each metropolitan area. Comparing central cities with suburbs, we can get a clear aspect of suburbanization. The share of suburbs to the total population of SMEAs with 1 million or more was 45.1 per cent in 1965, and it rose to 56.6 per cent in 1975 and 60.5 per cent in 1985. That of SMEAs with population from 500 to 1,000 thousands also increased from 13.8 per cent in 1965 to 35 per cent in 1985. Even in the smallest SMEAs, whose population was from 100 to 250 thousands, the population share of suburbs increased to 27.3 per cent in 1985, though it was only 5.7 per cent in 1965. Suburbanization proceeded considerably not only in the large metropolitan areas, but also in the medium or small metropolitan areas from 1965 to 1985.

The increase in the population of suburbs went on most significantly in the SMEAs with population from 500 to 1,000 thousands as shown in Figure 7. Those suburban population increased more than 10 times from 1965 to 1985. The suburban population of the SMEAs with population from 250 to 500 thousands also increased remarkably. It rose almost 7 times in the two decades. Even the SMEAs

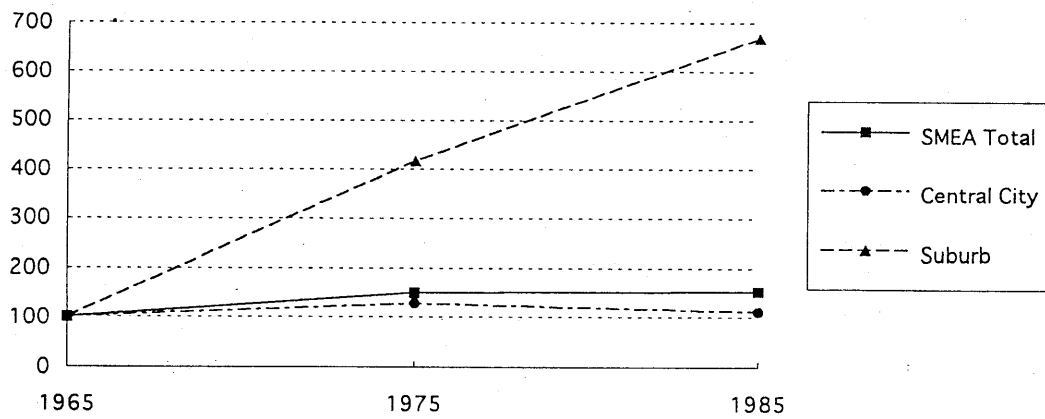
Figure 7-a Rates of Changes in the Population of SMEAs
with 1 Million or More



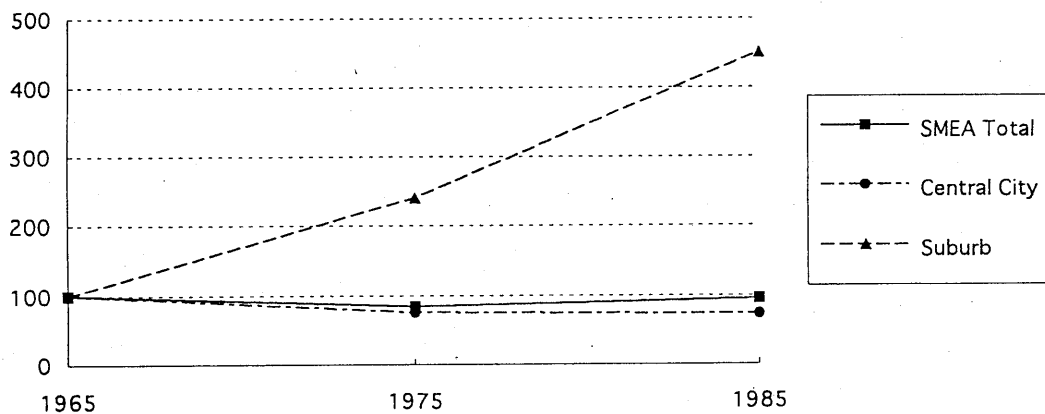
7-b Rates of Changes in the Population of SMEAs
with 500 - 1,000 Thousands



7-c Rates of Changes in the Population of SMEAs
with 250 - 500 Thousands



7-d Rates of Changes in the Population of SMEAs
with 100 - 250 Thousands



with population from 100 to 250 thousands had population 4 times in 1985 as large as in 1965. And those rates of the increase in suburban population were larger than the largest SMEAs.

It is obvious that the medium or small sized metropolitan areas grew faster than the large metropolitan areas owing to the nationwide dispersion of urbanization and the advance of suburbanization. At the same time, however, we also have to pay attention to the fact that such dispersal proceeded parallel with the continuous growth of the largest metropolitan areas, though their growth rates were less than smaller metropolitan areas.

If we see the five largest SMEAs shown in Table 9, all of them continued to increase their populations with their growth rates slowing down. Out of them, the central cities of Tokyo and Osaka SMEAs decreased their populations in all periods. The central city of Kyoto SMEA also started to decline in 1990. In spite of such decline of central cities, those SMEAs still grew as a whole. The growth of the five largest SMEAs was mainly due to the increase in suburban population.

The five largest metropolitan areas which are located in the three major metropolitan regions continued to grow in the two decades. These facts tell that spatial dispersion of urbanization has not been accompanied by the considerable migration out of those largest metropolitan areas to smaller metropolitan areas in the other regions or to non-metropolitan regions. It implies that such redistribution of population down the metropolitan hierarchy as suggested by Frey(1987) was not dominant in Japan even in the 1970s.

5 Conclusion

We revealed that the urbanization process of Japan in the periods from 1965 to 1985 can be characterized by two spatial phenomena; firstly, the suburbanization of the existing metropolitan

areas, and secondly, the spatial dispersal of urbanized areas. On the other, the SMEAs in the three major metropolitan areas also continued to grow in the same periods.

During the late 1960s and the early 1970s, we experienced decentralization from the major metropolitan regions to the other region. Since around the late 1970s, however, interregional income differentials began to increase again and the migration pattern also changed to reconcentration. Tabuchi(1988) has found that interregional migration is determined mainly by interregional income differential in Japan by testing the causality between migration and income differential. Based on his analysis, it might be said that the decrease in interregional income differentials brought about the reduction of immigration to the major metropolitan regions in the earlier periods, while reincrease in income differential has caused reconcentration, especially into Tokyo Region, in the latter periods.

Then, we can conclude that in post-war Japan the inter-regional movement up the metropolitan hierarchical system was predominant. It implies that the trends of counterurbanization or metropolitan deconcentration from large metropolitan areas to smaller or non-metropolitan areas as Champion (1988) and Frey (1987, 1988) suggested, have not appeared yet in Japan. On the contrary, Tokyo Metropolitan Area has been growing strongly with the large scale of suburbanization. As a result, the uni-polar concentration into Tokyo occurred.

The economic condition which promoted the uni-polar concentration into Tokyo was affected by the so-called bubble economy inflated after 1985. The bubble economy, however, was broken in the early 1990s. Such an economic change might be giving some impacts upon the Japanese regional structure, since the net-immigration to Tokyo Region almost stopped as we already mentioned.

Notes

- 1) The data sources for drawing these figures are *the Vital Statistics of Japan* published by Statistics and Information Department, Minister's Secretariat, Ministry of Health and Welfare.
- 2) See OECD(1986).
- 3) A municipality is qualified as a city if it satisfies all of the following conditions.
 - a. It has 50,000 or more inhabitants.
 - b. 60 per cent or more of the houses are located in the main built-up areas.
 - c. 60 per cent or more of the population (including their dependants) are engaged in manufacturing, trade or other urban type of business.
 - d. It has urban facilities and meets the other conditions for being considered urban, defined by the prefectural order.

It should be noticed, however, that there actually exist some cities with less than 50,000 population. According to the 1990 Census, 34.8% of the cities do not satisfy the minimum requirement of population size.

- 4) Refer to Statistics Bureau, Management and Coordination Agency (1992a).
- 5) Refer to Statistics Bureau, Management and Coordination Agency (1992a).
- 6) In our definition, each SMEA consist of one central city and its suburb, and it should has 100,000 or more of the total population. The conditions for deciding a central city and its suburb are as follows:
 1. The criteria for a central city
 - 1a The city must have more than 50,000 population.
 - 1b At least 75 per cent of the resident working population must be non-agricultural.
 - 1c The ratio of daytime to nighttime population must be greater than 1.

- 1d The resident working population commuting out of the city must be less than 30 per cent of the total resident working population, and those commuting to another central city must be less than 15 per cent.
- 2. The criteria for the metropolitan suburb
 - 2a At least 75 per cent of the resident working population must be non-agricultural.
 - 2b The proportion of the commuters in each administrative unit to a potential central city to the total resident working population in each unit must be greater than 10 per cent.
 - 2c If an administrative unit satisfies criterion 2b for more than one potential central city, it should be classified as the suburb of the central city to which the most commuters travel.

As for the definition of SMEAs, see Yamada and Tokuoka(1991).

- 7) Refer to United Nations(1993). According to this report, Tokyo has been number one since 1970 and is projected to be first each decade through 2010.
- 8) A new change is occurring. The net-inmigration to Tokyo Region almost stopped according to the most recent data of 1993.
- 9) The data sources of inter-prefectural migration are *the Annual Reports on the Internal Migration in Japan Devided from the Basic Resident Registers* published by Statistics Bureau, Management and Coordination Agency.
- 10) If we regard the three major metropolitan regions as the central region, and Other Regions as the peripheral region, the same changes in the migration patterns between central and peripheral regions as experienced in Japan were observed in some of European countries in the same periods by Vining et al.(1981).
- 11) As for the changes in the direction of interregional migration patterns, refer to Tsuya and Kuroda(1989). Such reversal of the recent trend in the migration between central and peripheral regions was also observed in many developed countries by Cochrane and Vining(1988).
- 12) In Yamada and Tokuoka(1991), the urbanization process of Japan

was analyzed in more detail by using SMEAs.

13) The populations of SMEAs in 1990 are those in the areas defined in 1985.

References

Champion, A.G., 1988. The Reversal of the Migration Turnaround: Resumption of Traditional Trends?, International Regional Science Review, Vol.11, No.3, pp.253-260.

Cochrane, S.G. and D.R. Vining, 1988. Recent Trends in Migration Between Core and Peripheral Regions in Developed and Advanced Developing Countries, International Regional Science Review, Vol.11, No.3, pp.215-243.

Frey, W.H., 1987. Migration and Depopulation of the Metropolis: Regional Restructuring or Rural Renaissance?, American Sociological Review, Vol.52, No.2, pp.240-257.

Frey, W.H., 1988. The Re-emergence of Core Region Growth: A Return to the Metropolis?, International Regional Science Review, Vol.11, No.3, pp.261-267.

Ishikawa, Y., 1992, "The 1970s Migration Turnaround in Japan Revisited: A Shift-share Approach," Papers in Regional Science, Vol.71, No.2, pp.153-173.

OECD, 1986. Urban Policies in Japan - A Review by the OECD Group on Urban Affairs.

Statistics Bureau, Management and Coordination Agency, 1992a. 1990 Population Census - Total Population -.

Statistics Bureau, Management and Coordination Agency, 1992b. Major Aspects of Population of Japan (1990 population Census of Japan Abridged Report Series No.1).

Tabuchi, T., 1988. Interregional Income Differentials and Migration: Their Interrelationship, Regional Studies, Vol.22, No.1, pp.1-10.

Tsuya, N.O. and T.Kuroda, 1989. Japan: The Slowing of Urbanization and Metropolitan Concentration, in A.G. Champion (ed.) Counterurbanization: The Changing Pace and Nature of Population

Deconcentration, Edward Arnold, pp.207-229.

United Nations, 1993. World Urbanization Prospects: The 1992 Revision.

Vining, D., R. Pallone and D. Plane, 1981. Recent Migration Patterns in the Developed World: A Clarification of Some Differences between Our and IIASA's Findings, Environment and Planning A, Vol.13, No.2, pp.243-250.

Yamada, H. and K. Tokuoka, 1991. A Study of the Urbanization Process in Post War Japan, Review of Urban and Regional Development Studies, Vol.3, No.2, pp.152-169.